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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,393	06/28/2004	Yukinori Sasaki	MAT-8559US	4460

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P O BOX 980
VALLEY FORGE, PA 19482-0980

EXAMINER

BUDD, MARK OSBORNE

ART UNIT	PAPER NUMBER
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2834

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/500,393	Applicant(s) SASAKI, YUKINORI	
	Examiner Mark Budd	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 9 and 14 are rejected on the 35 USC 103 (a) as being unpatentable over Suzuki and (JP62-81807))(hereinafter Suzuki (807)) in view of Suzuki (US-4,642,508) (hereinafter Suzuki (5508)). Suzuki (807) discloses a piezoelectric plate #7 (note figure 2a-2e) polarized and a thickness to erection, having electrodes on each face #6, #8, as well as first and second dielectric films #2, #9. Suzuki teaches the standard method of adjusting frequency by changing the thickness of at least one of the dielectric layers (SiO). Suzuki (807) does not explicitly teach that "a ratio of a sum of a thickness - - - is provided and a range such that - - - is substantially constant. However, this is merely a statement of intended function or desired result with no consequent structure defined that provide such a result. Thus, this language has not been given patentable weight. Suzuki (807) also fails to teach that the first dielectric film is in contact with both of the first and second electrodes. Suzuki (508) in figures 6 and 7 (see also column 4, line 53- column 5, line 40) teaches extending the dielectric layer #27 so that it covers the piezoelectric layer and both electrodes (except where terminal connections are to be made) in order to provide protection from a hostile environment as well as to "reduce strains" caused by bending of the piezoelectric material. Thus, for at least these reasons it would have been obvious to one of ordinary skill in the art to extend the dielectric layer of Suzuki (807) to cover the entire upper surface, including the second electrode.

Claims 2, 4-8 and 10-13 are rejected under 35 USC 103 (a) as being unpatentable over Suzuki (807) in view of Suzuki (508) as discussed above and further in view of Shibata.

. Suzuki(807) combined with Suzuki (508) substantially discloses the claimed invention..

However, the Suzuki references do not show, the piezoelectric plate is made of

aluminum nitride, at least one of the first dielectric film and the second dielectric film is

formed of a laminated layer of silicon oxide and silicon nitride. Wherein a ratio of a

sum of a thickness of the first dielectric film and the second dielectric film to a thickness

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of the piezoelectric plate ranges not less than 0.7 and not more than 2.0. Suzuki also teaches, that the principal vibration is a fundamental mode of the thickness longitudinal vibration and the principal vibration of a 2nd overtone mode of the thickness longitudinal vibration. Wherein, the piezoelectric filter is a ladder type filter formed by combining at least two of the piezoelectric vibrators, wherein the first electrode is divided into an electrode for inputting and an electrode for outputting, and the second electrode is used as an electrode for grounding. Shibata, teaches each of these features are known and used in order to prevent unwanted spurious vibrations (see office action of 1-13-06 for explicit details of the Shibata reference). It has long been held that optimization of a known structure for a particular application is within the skill expected of the routineer. It has also long been held that selection from among known, suitable materials, is within the skill expected of the routineer. Thus, for at least these reasons it would have been obvious to one of ordinary skill of the art to provide these details to either one of the Suzuki references.


Further cited of interest is Inoue..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Budd whose telephone number is 571-272-2019. The examiner can normally be reached on Monday-Thursday from 6 a.m. to 4 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg, can be reached on 571-272-2044. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mark Budd
Primary Examiner
Art Unit 2834